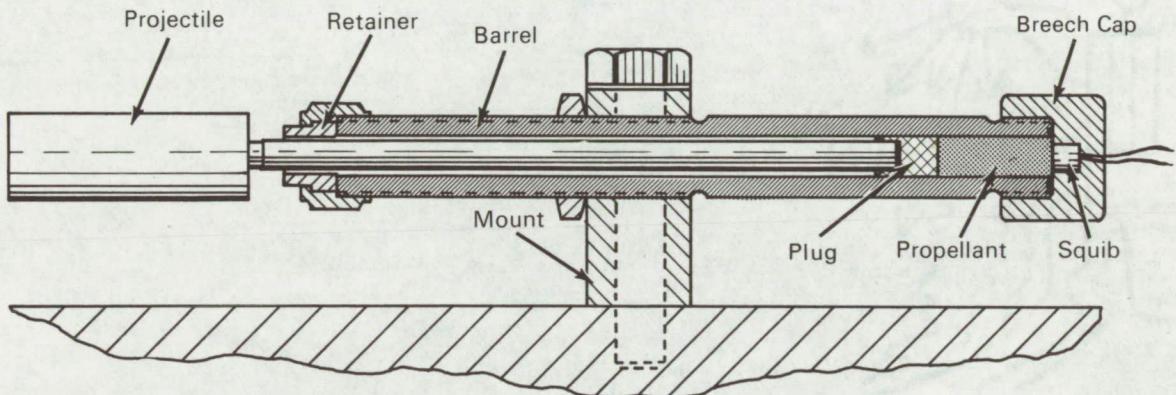


NASA TECH BRIEF



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Self-Sealing Propellant-Actuated Device Eliminates Atmosphere Contamination



The problem:

The launch of a projectile by propellant combustion allows combustion products and blast debris to contaminate the surrounding surfaces and atmosphere.

The solution:

The internally generated combustion products are retained within the device muzzle by a plug which seals the barrel end after projectile ejection. Since no blast wave is produced, only the projectile can disturb the surrounding surfaces and atmosphere.

How it's done:

The self-sealing propellant-actuated device, shown in the figure, consists of an elongated barrel and breech cap mounted on a support block. In operation, the squib is energized to fire the solid propellant charge. The payload is propelled down the barrel by means of the generated gas pressure acting on a lead plug. At the completion of the cycle, the plug is swaged into a retainer which is held to the barrel by a locking lug. The junction of the lead plug and the retainer provides a positive seal for the gas

and debris. Throughout a series of test firings, this device invariably held the pressure and sealed in all combustion products.

Note:

Requests for further information may be directed to:
 Technology Utilization Officer
 NASA Pasadena Office
 4800 Oak Grove Drive
 Pasadena, California 91103
 Reference: TSP 70-10248

Patent status:

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